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ABSTRACT

The following four papers focus on the topic of evaluating Internet information services: "Some Evaluation Criteria To Assess Internet Information Services" (Carmel Galvin); "The Teacher Librarian's Role as Evaluator of Internet Information Services" (Pru Mitchell); "How Students Evaluate Internet Information Services" (Ross Todd); and "Internet Resources which support the Alberta Social Studies and Science Curricula in Grades Four to Six" (Maureen Grant Pelensky). (AEF)

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TOPIC I

EVALUATING INTERNET INFORMATION SERVICES

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SOME EVALUATION CRITERIA TO ASSESS INTERNET INFORMATION SERVICES

Carmel Galvin
Teacher Librarian and IT Coordinator, Fadden Primary School, Canberra, ACT ,Australia

INTRODUCTION

The consideration of evaluation criteria useful for assessing Internet information services requires a statement of context. The information needs of primary school students (K-6) are vastly different to those of an academic or a casual net-surfer. Diverse audiences will need to use diverse criteria according to their information needs. Whilst some criteria may be generic, it is from the perspective of a primary school teacher-librarian that this set of criteria has been developed. Within this context and using these criteria, sites are evaluated for the information needs of primary school students and staff.

Criteria have been grouped under the following headings:

- Content;
- Design and structure; and
- Educational value.

CONTENT

Recency
One particular strength of the Internet as an information source is the recency of information available. It should be expected then, that content is up to date. The CIA fact book **<http://www.odci.gov/cia/publications/95fact/index.html>** provides information about countries that is updated every six months. A traditional print source of such information could not provide such immediacy. The most recent revision date indicates the currency of the information in the site.

Relevance
The instructional needs of students should be taken into consideration. Does the site provide appropriate material for desired learning outcomes or is it merely an on-line version of available print material? It may be that other resources are more appropriate for students' information needs. The mode of presentation of information; textual, visual, interactive can be a powerful motivating tool for the learner.

Authority
The author of the site should make explicit the range and sources of information contained therein. Selection criteria for linked sites and the provision of e-mail contact help establish authority and veracity. The links within a site and the links to other sites need to be accurate, relevant and operational. Sponsorship of the site by a recognised national, regional or educational institution assists in establishing authority.

Freedom from bias
Factual sites suitable for primary school use should provide a balanced point of view. Material needs to be free of gender, racial and cultural bias.

Audience
Whilst it is often difficult to determine a particular audience for many sites, where sites are particularly aimed at the K-6 sector the material should be evaluated for appropriate language level and interest level.

DESIGN AND STRUCTURE

Quality

There is no doubt that good graphic design principles enhance the presentation of material. Establishment of identity, consistency of approach across a site and continuity within the site enable material to be easily accessible. Much has been written on the topic of good design. Two sites to refer to are the *Yale Style Manual* at **<http://info.med.yale.edu/caim/StyleManual_top.html>** and *Design and Style Guidelines* at **<http://WWW.Charm.Net/~web/Style>**.

Text

The format and colour of the text should be aesthetically acceptable and easy to read. The use of larger fonts can enhance educational sites. The provision of text only versions of pages allows access to those without graphical browsers. The amount of text per page should be assessed for usefulness. If a primary age child has to scroll through dense text to obtain information, interest will wane.

Graphics

Graphics should enhance a site rather than being purely decorative. The Cub Den **<http://www2.portage.net/~dmiddlet/bears/cubden.html>** demonstrates good use of text, font size and graphics suitable for young students. Overuse of graphics and background images may cause sites to load very slowly. In K-6 schools where equipment used is often far removed from 'state-of-the-art' technology, this can be a significant issue.

Navigation

The home page of any site should have a linked contents list for that site. Each section of the site should be easily navigable with a link at the end of each section to return the user to the home page. Links to the sponsoring institution should be present. Links looking outwards need to be ordered and relevant. The *ACTEIN* site (Australian Capital Territory Education Information Network) **<http://freenet.actein.edu.au>** demonstrates these features.

EDUCATIONAL VALUE

Enhancement of learning/thinking processes

Does the site provide activities for learning/thinking? Mentoring services, the provision of expert advice in the field such as ask a geologist: email to <Ask-A-Geologist@usgs.gov> are useful services. Interactive sites such as *Wacky Web Tales* **<http://www.hmco.com:80/hmco/school/tales>** require the student to contribute to the site in order to get a result.

Useful pointers to other locations

Compilations of useful websites for K-12 education are in copious supply on the Internet. The criteria that the compiler used to select these sites would be of assistance when evaluating their usefulness. A brief description of items on a Hotlist is useful to help assess worth before spending valuable time exploring all the links. A particularly good compilation of theme related sites is located at *Teachers Helping Teachers* at **<http://www.pacificnet.net/~mandel/EducationalResources.html>**

Useful resources for downloading

Where resources are available for downloading, clear instructions and any necessary accompanying software should be linked to the site. Sound and video files need accompanying notes to specify minimum hardware and software requirements because it is highly unlikely that primary schools will have the latest technology available.

Participation in projects

Invitations for project participation need to be accompanied by time, scope and sequence details. Preferred clients should be listed and archives of previous such projects made available. The provision of ongoing support in the form of a listserv for collaboration and discussion is desirable. Such project support can be viewed at the *Book-Rap* site at **<http://owl.qut.edu.au/oz-teachernet/projects/book_rap/br.html>**.

Whilst the above criteria are neither exhaustive nor complete, they may provide a starting point for discussion about suitable criteria to use in a primary school when accessing Internet information services.

REFERENCES

Grassian, E. (1995) *Thinking critically about World Wide Web resources*
http://www.ucla.edu/campus/computing/bruinonline/trainers/critical.html

Inventory of Electronic Resources: Resource Selection Criteria (1996)
http://www.oltc.edu.au/ier/oltc2.htm

OII feedback form for educational sites (1996)
http://copernicus.bbn.com/testbed2/forms/site_feedback_new.html

At the time of writing **Carmel Galvin** held the position of Teacher Librarian and IT Coordinator at Fadden Primary School in Canberra, ACT, Australia. Carmel now holds the position in IT Training with the Professional Development Section of the ACT Department of Education and Training Carmel may be contacted via email at <Carmel.Galvin@actein.edu.au>.

THE TEACHER LIBRARIAN'S ROLE AS EVALUATOR OF INTERNET INFORMATION SERVICES

Pru Mitchell
Teacher Librarian, La Salle College Library, Midland, Western Australia

'Evaluator of Internet Information Services'! Get out that teacher librarian duty statement and put on another hat. It seems there is no way to escape this new responsibility. According to *Learning for the Future* (1993:43), teacher librarians 'develop policies, procedures and criteria for selecting resources which meet curriculum, informational and student recreational needs'. If Internet information services can be used to help meet such needs, teacher librarians will be involved in evaluation of Internet services.

This paper presents a brief discussion of how the introduction of Internet information services might affect a school library's Collection Policy. The La Salle College Library Collection Policy is used as a framework for the discussion.

COLLECTION GOALS

Access to online information services changes the whole concept of 'collection'. Does 'the collection' mean everything users have access to, or only that which has been actively 'selected' for inclusion? The goal of 'a well-balanced collection' also requires rethinking. Most obvious is the opportunity to move from the 'just in case' philosophy of selection, to one of 'just in time', particularly in the area of current information.

A second 'balance' dilemma has arisen thanks to the low cost and immediacy of Internet information. In the past there have been limitations such as available funds and physical space to 'assist' in selection of resources. These limits were applied particularly in the area of meeting 'student recreational needs'. Is my unease about all those bookmarks on the Library's Browser pointing to X files, Star Wars, Triple JJJ and NBA a throwback to a bygone era? Should I rejoice that students, as well as library staff now consider the collection to be balanced?

The Internet can make a positive contribution to the second goal of the library collection, 'to provide College staff with a sound range of resources to support their teaching and professional development'. By locating and evaluating newsgroups and listservs which deal with teachers' professional interests, teacher librarians can broaden dramatically the professional development resources available. Of course, issues of access and training for teachers will need to be addressed.

COLLECTION SCOPE

At this stage of the Internet evolutionary process, it can prove difficult to maintain our stated 'emphasis on resources which reflect the Western Australian, Australian and Catholic heritage of this College'. There is reason to hope this will improve as the presence of our State, Nation and Church on the Net increases. Without being parochial, or devaluing the borderless context of the Internet, it would be preferable in many cases for students to receive locally oriented information as their first result, with the opportunity to broaden their search if desired. Teacher librarians might remind students that it is often appropriate to use Australia as a default term when refining an Internet search.

'Resources should contribute to the development of an appreciation of society's pluralism.' The Internet has the potential to greatly increase exposure to information by and about other cultures. In reality, most users find most of their information originates from North America, the UK and parts of Europe. Dale Spender (1995) deals with some of the issues of power and access to the Internet in *Nattering on the Net*. Despite the potential of the Internet, minority groups still tend to have a

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minority presence on the Net. This needs to be borne in mind throughout the evaluation process, and some affirmative action strategies applied.

'The Collection contains information in a wide range of formats.' As with all physical formats, the Internet has strengths and weaknesses. Access is undeniably the biggest challenge, but elements such as immediacy, ease of use, seductive design, and relatively low cost make the Internet most attractive to many users. Evaluation involves consideration of which format is the most appropriate source of information for a specific need. Libraries with limited Internet access tend to use it as a back-up service for use when information is not found readily in the physical collection.

RESPONSIBILITY FOR SELECTION

'The Head of Library may involve administrators, teachers, students, and members of the wider College community in selection, where appropriate.' New processes may be needed to facilitate community involvement in evaluation of Internet resources. I have found students are much quicker to bring in Internet addresses, and add bookmarks to Netscape than they are to suggest print titles for consideration. It may be possible for staff users to add links or bookmarks to a school, faculty or library home page as they evaluate them, although some schools will prefer to have a single webmaestro responsible for maintaining such pages.

Not addressed in this Collection policy is the fact that responsibility for certain selection decisions should preferably rest within the context of a schoolwide Information Technology Policy. The introduction of Internet information services involves evaluation of tools by which to access these services, and requires integrated decision making in the areas of:

- Hardware, especially modems, and/or networks
- Internet Service Provider
- Software for accessing the various Internet services, particularly Web Browsers
- Search engine(s) to be 'promoted' or 'taught' across the school
- Common structures and design of Internet publishing within the school.

CRITERIA FOR SELECTION OF LIBRARY MATERIALS

Once the establishment decisions have been made for Internet information services, the ongoing task of selection begins to resemble the familiar selection role of the teacher librarian. Internet information services can be evaluated using the criteria already stated in the Library's Collection Policy.

The appropriateness of resources are evaluated according to:

- ***Relevance to current or future curriculum.***

This, of course, continues as the fundamental consideration in selection for a school library. One of the benefits of Internet services is that there needs to be less anxiety about the potential 'future curriculum'. With traditional collection management, most teacher librarians exhibit a survival tendency which involves trying to 'second guess' curriculum changes or teacher whims, and selecting resources which might be useful.

- ***Appropriateness of level to intended users.***

While there are sites which cater for school students, there is no way of restricting most of the search engines to search only these sites. In a school library, students usually face materials designed for their level or on average up to 5 years either side. On the Internet the potential level disparity is enormous, especially currently with the longest users of the Internet being academic and research institutions. Different search engines for primary and secondary students could be useful. A prototype of this concept is *Yahoo's Yahooligans Web Guide for Kids* at **<http:// www.yahooligans.com/>**.

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- ***Physical format and appearance of material.***

The Internet differs significantly from other sources of information in terms of format. Just as videos and books have discrete sets of format related evaluation criteria, teacher librarians will need to develop criteria for evaluating Internet services. These should include consideration of issues such as speed of access, interactivity, quality of links, design of web pages, browsers supported and security.

- ***Cost, value and suitability for library use.***

At present, Internet access is paid for, but most of the content used by school libraries is free. This is certainly attractive, but also carries with it a lack of consistency of quality and service. It is possible that subscriptions to certain specialist information providers and services, eg. *AAP*, will become a more attractive option to school libraries in the future. The development of an Internet agent which maintains a profile of its clients' interests might also provide a service to school libraries.

Resources shall meet high standards of quality in both content and presentation. The quality of resources will be evaluated in terms of:

- ***Accuracy and currency of content.***

There is a common delusion that because the Internet is new, its information is by nature up-to-date. The older the Internet becomes, the more important it becomes to eliminate this thinking. With some younger users, there is a corresponding view that because it is technologically advanced, the Internet delivers a superior information product. Accuracy needs careful evaluation, not only in terms of content, but of links, photographs, sound, labels, and text conventions.

- ***Authority and reputation of authors, producers or publisher.***

Gurn (1995) points out the major challenge here. 'Authority in print materials is frozen in time with the data. This is not so for on-line information. Data that is expected to change, or is time sensitive requires the most care in noting authority.' The Internet encourages many to publish who would not otherwise, and while this is intended as a positive statement, attention should be paid to the author's email address, the domain of the site, and any indication of author's established reputation in the area.

- ***Scope of the work, adequacy of coverage and level of detail.***

Locating Internet resources which contain significant coverage within a document size which can be read comfortably in an online situation is a challenge. If users continually need to download or print the documents from the Internet, it may indicate inappropriate scope, (or insufficient Internet access points, or inappropriate research tasks).

- ***Treatment of subject matter, taking in to account language, bias and approach.***

The Internet seems to excel as a forum for debate, and as such is a good source of variety of opinion on most topics, found predominantly in Newsgroups. While this is a bonus when teaching 'point of view', it creates problems for users who do not recognise bias as an issue when undertaking research.

- ***Organisation & accessibility of information, layout and index.***

This, and the points above, are expanded in a number of excellent web sites dealing with criteria for evaluating Internet information services:

Sofweb (Schools of the Future, Victorian Department of School Education) has a simple Australian guide for students entitled: Section on Evaluation Questions, available at **<http://www.dse.vic.gov.au/netiqet2.htm#3>**.

Selection Criteria for World Wide Web Resources: a checklist of criteria for assessing WWW sites by Carolyn Caywood (1996) available at **<http://duckdock.acic.com/carolyn/criteria.htm>**.

Thinking Critically about World Wide Web Resources by Esther Grassian UCLA College Library (1995) at **<http://www.ucla.edu/campus/computing/bruinonline/trainers/critical.html>**.

Analyzing Web Sites by Kathy Schrock (1996). Kathy has designed Critical Evaluation Surveys for students at Elementary, Middle, and Secondary School levels, available at **<http://www.capecod.net/Wixon/wixon.htm>**.

REVIEWING SOURCES

'Reputable journals and selection aids will be consulted to identify potential purchases.' Many computer magazines, eg. *Internet Australasia* and *Australian Personal Computer* contain reviews of Internet sites, and professional school library and education journals are beginning to include online services in their review columns. Recommendations from colleagues are invaluable guides to selection and can be obtained by following professional newsgroups, and listservs. As well as searching in bookshops, SCIS, and publisher's catalogues to locate appropriate resources, the teacher librarian will be searching the Internet.

'The actual resource will be examined before purchase whenever possible. Evaluation data can be recorded in the Notes field of the online catalogue.' While significantly faster than faxing an order and waiting for resources to arrive, examining Internet resources for 'purchase' requires effort in going to the identified address, and either reading online, or downloading the information to evaluate it. Just as teacher librarians cannot undertake evaluation of traditional library resources without spending time reading books and viewing videos, they cannot evaluate Internet information services without spending considerable time online. Passing colleagues and administrators need to realise that 'surfing' is an essential part of a teacher librarian's role.

COLLECTION EVALUATION

'The Library collection will be evaluated regularly, and resources which are inadequate will be withdrawn.' Internet resources need to be 'selected', and like all library resources they must be deselected as they become no longer needed, out of date, superseded by a better resource, technically inferior, or culturally or politically incorrect. Once the decision to weed has been made, a quick press of the delete key is required, but with Library Web pages, dead links need checking and removing or redirecting, and any local cataloguing data will need to be removed.

CONTROVERSIAL RESOURCES

'Resources which are considered controversial will be carefully reviewed by the Head of Library and at least one other reviewer.' The controversial offerings of the Internet have been the subject of plenty of media attention. These concerns are real, and need to be addressed. No longer can a teacher librarian 'approve' every resource in their 'collection'. One response is to attempt to 'filter' or 'censor' access (depending on point of view), however if students are to experience the true power and design of the Internet, this does not seem a realistic option for most school libraries. Thus there is a strong interest in Internet Acceptable Use Policies and Agreements. There are many examples of these available online which schools can adapt to suit their situation, eg. *Acceptable Use Policies* available at <**http://www.dse.vic.gov.au/ftakcare.htm**>. When a potentially controversial Internet resource has been actively selected for use, there is the opportunity to annotate the link to that site outlining the reason for that decision, and the use for which the resource was intended.

PROCEDURES

Internet information might bring some savings in the area of order books, plastic and security slugs, but it does require 'processing' in some way usually by bookmark, or hypertext link. An Internet address may require some renaming to make it obvious which users the teacher librarian intends it for, and as with all online information will consume telecommunications funds, disk space, paper (if printed), and usually plenty of time. Some Internet sites may warrant entry on the library's catalogue to alert students to the Internet as an option. Schools with fully integrated networks containing both catalogue and Internet on an Intranet, or common workstation, will be able to take advantage of the next generation of library automation systems which enable hypertext Internet links to be inserted into catalogue records.

CONCLUSION

It is heartening to realise that existing school library Collection Policies maintain their relevance in the face of a new format as revolutionary as the Internet. A set of criteria specific to Internet services needs to be drawn up, and teacher librarians designing their own web pages need to heed these criteria as publishers as well as users.

The teacher librarian role statement also remains intact. Most school libraries find that despite the new technologies and information services with which they increasingly deal, there is no corresponding decrease in expectations of traditional library services. If existing services are to be retained and all the possibilities of the Internet are to be exploited, teacher librarians face a dramatic increase in workload. Discussion is urgently needed as teacher librarians and schools consider future priorities, alternatives, and staffing implications.

Finally, but most importantly, the teacher librarian's role is to assist teachers and students to develop these same evaluation skills and criteria through use of the Internet as one information source.

REFERENCES

Gurn, Robert M. (1995). 'Measuring information providers on the Internet.' Available WWW: **http://freenet.buffalo.edu/~ac110/mip.html**. Also published in *Computers In Libraries*. 15 (1), January: 42.

Learning for the future: developing information services in Australian schools. (1993). Carlton, Vic.: Curriculum Corporation.

Spender, D. (1995). *Nattering on the Net.* Spinifex: Garamond Press.

Van Orden, P. (1988). *The collection program in schools.* Englewood, COL.: Libraries Unlimited.

Pru Mitchell is Teacher Librarian at La Salle College Library in Midland, Western Australia. Pru may be contacted via email at La Salle College <lasalle@iinet.net.au>

HOW STUDENTS EVALUATE INTERNET INFORMATION SERVICES

Ross Todd
Senior Lecturer, Department of Information Studies,
University of Technology , Sydney, N.S.W., Australia

These are some random thoughts to raise some issues surrounding the question of how students evaluate Internet information services. The short answer, and based on limited research that I have been involved with, is 'they evaluate information services with great difficulty'. A useful contextual background for this discussion is found on the Open Learning Technology Corporation Ltd (OTLC) web site. The document is called 'Learning with software: pedagogies and practice'. I would recommend it as prerequisite reading! One important statement made in this document is that the emergence of new technologies, including the Internet, is already being accompanied by an expansive range of claims regarding their potential use in education, and the positive impact they are bound to bring to learning and teaching. Underpinning the Internet in a learning context is the assumption that it is fostering global learning communities between students, teachers, schools and professionals. Here is a typical example: 'A net connection in a school is like having multiple foreign exchange students in the classroom all the time. It promotes active, participatory learning.' As the OLTC paper warns, 'outside of the technological evangelists there are many who would see these claims as being like the Emperor's new clothes - without substance!' It is a curious thing to me, that in the numerous public presentations I've heard about the role, and integration, of the Internet into school education, all has been overwhelmingly positive. I believe that the Internet has enormous potential for contributing to learning, but all teachers and teacher librarians at this stage have to invest an enormous amount of time and energy to make it a reality. The Internet is not about to go away. It will play an important role in shaping classroom pedagogy for many years, and will contribute to a learning revolution shaped around the digital classroom. It will contribute to the evolution of new educational roles in schools, such as positions for Director of Information Services. How can we use the Internet to build a global learning community? First, we have to listen to, and observe the kids interneting as part of their learning experiences. They have a great deal to say, both positive and negative.

The following comments are based on research in progress being undertaken by Celeste McNicholas and myself on students' use of the Internet in their classroom experiences. The study has involved 1 classroom teacher and two senior classes, 1 geography and 1 religious education class involving a total 42 students, and is based on tracking students' use of the Internet as part of research assignments set by the classroom teacher. The students were randomly allocated to one of two groups: Group A used traditional information sources and Group B accessed the Internet, primarily the World Wide Web, from any of fifty possible sites using Netscape as a search engine and unconstrained by any electronic censorship. They had open access to the Net at all times throughout the course of the study.

In the context of the question: How do students evaluate information resources, and its answer: With difficulty, I would like to raise two issues to get the debate going:

1. THE REALITY OF THE INTERNET.

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Its ambiguity, unpredictability, lack of structure, lack of selectivity, and its enormously variable information quality are its realities. To date, most resources on the Internet have not been developed with a specific goal of fostering K-12 learning communities. Most content is from overseas, and there is little Australian content. Do we shield learners from this reality? Take for example the question of pre-selectivity. Traditionally school libraries have been the bastions of carefully selected information resources, often driven by limited budgets, and extensive selection policies have been developed to ensure careful and appropriate selection of resources. Research studies have shown that school libraries are the primary source of information for students in their research tasks, followed by resources available from local public libraries, and other established information sources, such as government departments. Historically, learning resources have been preselected, and students have developed the information culture of 'if it is in the library it must be good.. or right.. or appropriate'.

This was evident in our study with students using the traditional library resources. But this is another reality, and there was some evidence in our study that students were bringing these embedded assumptions about the quality of preselected information resources, and this was a great source of frustration to them. They found it difficult to get a handle on the openness, vastness and uncritical lack of judgement on the Internet. How do educators deal with this? One solution of course is to download preselected sites and make only these available to the students. This saves time, online costs, and of course is very efficient in the learning process. It also guards against students having access to 'inappropriate' information. But given that this is likely to be the primary source of information in years to come (yes, above the school library and the public library), and increasingly available in homes, is this a realistic solution?

Given the rhetoric about the development of independent learners, lifelong learners, and discussions about situated learning, just-in-time learning, cooperative learning and the like, how then do we educate students for dealing with the reality of the Internet: its ambiguity, unpredictability, lack of structure, and lack of selectivity, and its enormously variable information quality. They will confront it out of school. How do we enable them to confront it in school, so that the experience beyond school is meaningful? How can we teach students to manage both the richness and paucity of information available on the Internet if we provide them only with a carefully chosen, tailored information environment?

2. THE QUALITY OF INFORMATION ON THE INTERNET.

Embedded in the above ideas is the question of how kids make judgements about the quality of the information they find. Traditional information -- print -- for instance, has inbuilt into its packaging the criteria that help students to make relevance judgements -- such as origin of information, date of publication, blurb on the credibility of the author, the author's expertise, context as found in the introduction. Much of the information on the Internet does not come with these mechanisms for making the judgements, and students we observed (one we would have considered reasonably information literate!) have real difficulty making choices about the quality and the accuracy of the information. They have the assumption that since it is available on the Internet, it must be good, akin to since it is available in the library, it must be good. I would suspect that our information literacy programs have not given adequate attention to the 'qualities' of information, how these qualities vary across intellectual domains (what makes quality historical information is quite different to what makes quality scientific information), and the skills of applying these qualities in order to make discriminating choices about information. Even more so, we need to be teaching kids how to be critical, discriminating evaluators of information. This is all about ensuring students are information literate. How do we do it in relation to the Internet?

Student's difficulty in evaluating information was shown in the problem of plagiarism: the cutting and pasting. As one student has said: 'You don't have to use your brain', and another: 'It's so easy to cut and paste. I get my assignments done real quick.' Here we are really talking serious stuff: effective integration of any new information into learning means that students must have the ability to analyse, synthesise and evaluate information -- to construct an answer that is unique, thoughtful, and truly demonstrates learning. The download to printer function makes cutting, pasting and plagiarism so easy. While it already is a major problem, it will be come a critical problem because of the ease at which the Internet enables it. We need to start more carefully thinking about the kinds of research tasks we set -- not just mere regurgitation of ideas downloaded from the Net, but activities that enable students to engage in the construction of their own knowing -- to be creators of ideas, rather than reflectors or copiers of other people's ideas. We also need to rethink how we assess those tasks - are we really rewarding plagiarism?

I would argue that with the advance of the Internet, the skills of information literacy are even more critical. Students need to have some rather sophisticated and different information handling skills to those associated with traditional information. I hope this virtual conference will enable these critical skills to be articulated and elaborated.

The Internet does offer enormous potential for enhancing student learning. I embrace it fully. Actually, I have little choice as an educator but to embrace it. But before we as educators jump on

the bandwagon -- or the bandwidth, and go for an interesting journey on the information superhighway, we need to stop and do some serious thinking about how we will embrace it, and how we will use it effectively. If we don't, the information superhighway will become a rather rocky road, and it won't be just the students who get bruised.

Ross Todd is a Senior Lecturer in Teacher Librarianship with the Department of Information Studies at the University of Technology, Sydney in N.S.W., Australia. Ross may be contacted via email at <rtodd@acs.itd.uts.edu.au>.

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INTERNET RESOURCES WHICH SUPPORT THE ALBERTA SOCIAL STUDIES AND SCIENCE CURRICULA IN GRADES FOUR TO SIX

Maureen Grant Pelensky
Teacher Librarian, Alberta, Canada

DESCRIPTION OF THE PROJECT

One significant role of the teacher librarian is to select resources which are suitable for young people and relevant to the curriculum. A new and exciting source for such resources is the Internet. The project described below was to produce an annotated list of Social Studies and Science Internet resources which correspond to the Alberta curriculum for grades four to six. The project has evolved to include a World Wide Web document which can be accessed at **<http://www.ualberta.ca/~mpelensk/first.htm>**.

The resources on the list are materials which teacher librarians can make available to teachers, much as they do with other resources which support curriculum units. After viewing the site, the teacher will decide, just as is done now with other library materials, if the Internet site is appropriate to the needs of the class.

The intentions of this paper are to discuss a rationale for this project, to describe the method of locating resources for the list, to discuss challenges in Internet searching, and to describe the findings of the project.

RATIONALE

The Internet has amazing possibilities. It has been touted as being the educational tool of the future and the vehicle by which teaching will change forever. However, some teachers and teacher librarians may be experiencing 'technostress', burnout precipitated by the lack of time and resources to keep current and confident with new technologies. Because teachers bear a considerable load simply teaching the curriculum as prescribed by Alberta Education, familiarizing themselves with new technologies can be viewed as being an additional burden. This project provides an introduction to the possibilities of the Internet within the confines of curriculum topics. 'New uses of new tools often first resemble more familiar ways of using traditional tools (Harris 1994:48). Teachers can take time to explore these resources within the familiar constraints of curriculum and without taking valuable planning time away from curriculum. Teachers will also appreciate current information, such as statistics about countries or information about current political leaders, information sometimes not available in the school library in print format.

A second justification for the project is that teacher librarians have the responsibility to select cost effective materials to support the curriculum. Assuming that the technology is already in place in the school, the Internet materials on the list are free of charge. As school library budgets dwindle, it is sensible to make use of free available resources.

A final rationale for the project is that searching the Internet is extremely time consuming. A teacher or teacher librarian would find it difficult to spend the necessary hours searching for and evaluating sites. Done within the context of a directed study at graduate school, this project enabled the author to learn strategies for Internet searching, to become familiar with the myriad of resources on the Internet, and to become knowledgeable about HTML, the language in which WWW pages are written.

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METHOD

By examining learner expectations and objectives outlined in curriculum guides published by Alberta Education for Social Studies and Science, grids indicating keywords in topics for grades four

to six were developed. The words on the grids were searched as keywords using various search engines on the World Wide Web.

Literature searches were not productive, because in spite of the abundance of literature about the Internet, few articles addressed Social Studies and Science sites which correspond with the Alberta Curriculum.

People proved to be a most valuable source of information. Examination of lists of favourite sites (in most cases, general education resources) was useful for leading to subject specific sites for this project.

Listservs are informal but often informative ways of finding timely information. Two such lists were monitored daily for reference to potential Internet sites. They include:

1. LM_NET, Library Media, a discussion group for teacher librarians. This is a high volume list (about 75 messages daily). About 4,000 teacher librarians across the US and Canada subscribe to this group and discuss topics of interest to the school library community, including the latest on services, operations and activities; and

2. COSNDISC, Consortium for School Networking, a discussion group for technology in education. This is a low volume list (four to twelve messages daily) with approximately 750 members. The focus of the list is anything to do with school networking, including technical issues and the Internet. WorldLinks, an email service for updating educators about new Internet resources was subscribed to, and has great potential value for helping teacher librarians keep informed about new sites on the Internet. It can be accessed at <**http://www.smartpages.com/**>.

CHALLENGES IN INTERNET SEARCHING

The majority of sites on the final list were located by searching the World Wide Web using Netscape. Because the Internet can best be described as haphazard, searching the Net is never systematic. At the time of writing this paper there were approximately twenty search engines available for searching the Internet. Each engine covers a certain portion of the Internet and offers different search capabilities. However, the searcher has no way of knowing what portion of the Internet has been searched or overlooked. To complicate matters further, new search engines are being developed weekly. For teacher librarians, who are used to accessing information in an organized fashion, this can be frustrating.

The search experience therefore can be described as chaotic. Originally, keywords from the grid were searched using various search engines. This process led to frequent false drops, or led to sites which, while topical, were not appropriate for the curriculum unit because of reading level or material covered. For example, one Grade five science topic is 'Classroom Chemistry'. When the search term 'chemistry' was used, hundreds of sites were returned as being applicable. However, many sites were mounted by Chemistry departments at various universities, and while they contained valuable information, they were simply not suitable for the grade five unit. In the end, only one site was found for this unit and it came from an educational database which provided lesson plans. This example demonstrates one reason why the search was time consuming. It is estimated that for every item on the list, twenty sites were examined.

Another issue in searching is the mysterious disappearance and reappearance of sites on the Internet. One mistake in typing a URL makes a site unreachable. Even if a URL is correctly typed, a site can be busy and not allow access. Also, URLs frequently change, with the result that a site can disappear from one week to the next.

There are multitudinous education sites which are of a general nature. They are sites like *KidLink*, *Global Schoolhouse*, *Web66* or Canada's *SchoolNet*. Although examination of the links in such sites was time consuming, the rate of finding sites which were suitable for teachers or students was higher than using general subject searches.

FINDINGS

Several points can be made about the status of the Internet today in relation to this project. First, there are many more resources available in the field of Science than there are for Social Studies. One theory explaining this is that the Internet is dominated by scientists who publish profusely on the Net. Also, while sites on American history and government abound, the amount of information applicable to Canadian Social Studies is disappointing. It is anticipated that the rapid growth of the Internet will make more Canadian content available soon.

Because of the haphazard structure of the Internet and the variety of sites available, it is recommended that students do not search the Internet independently or without teacher guidance. One major reason for this is that net searching as indicated above can be extremely frustrating and time consuming. Teacher librarians strive to make the search process for students less not more mysterious. It would be feasible for students to work independently through the sites on this list because the initial search has been done. 'Whatever, don't advise students or others to look to the Web as a place to start. It is an 'interesting supplement' to a well thought out search for information' (Priest 1995).

CONCLUSION

The project undertaken for this study represents only a fraction of the potential of the Internet in education. This project uses Internet resources to support the way teachers teach today, and is recommended as an introduction to the possibilities of integrating Internet resources into classroom practice. The potential of the Internet for key pals, global communication, consultation with experts, teacher support and lesson plans, and interactive units of study is impressive.

A new role of teacher librarians should be to endeavour to keep knowledgeable about developments in the Internet. This task, while demanding, is also exciting and crucial to continuing to provide teachers with the best possible resources to achieve their educational objectives.

REFERENCES

Harris, Judi. (1994). 'People-to-people projects on the Internet.' *The Computing Teacher*. 21, February: 48-52.

Priest, Curtiss W. (1995). 'An impromptu primer on information search strategies.' [Online]. Available email: <cosndisc@list.cren.net> (December 21,1995).

Maureen Grant Pelensky is a teacher librarian
in a school in Alberta, Canada. Maureen can be contacted
via email at **<mpelensk@gpu.srv.ualberta.ca>**